P01090US2A(P393)

Claims:

1-17 (Cancelled)

18. (Previously presented) A functional polymer that is defined by the following formula:

$$R^{1}$$
 X
 R

where R is selected from C_1 to C_6 trialkyl-silyl groups, C_1 to C_{20} alkyl groups, C_4 to C_{20} cycloalkyl groups, C_6 to C_{20} aryl groups, thienyl, furyl, and pyridyl groups; and R may optionally have attached thereto any of the following functional groups: C_1 to C_{10} alkyl groups, C_6 to C_{20} aryl groups, C_2 to C_{10} alkenyl groups, C_3 to C_{10} non-terminal alkynyl groups, ethers, *tert*-amines, oxazolines, thiazolines, phosphines, sulfides, silyls, and mixtures thereof; where C_1 is selected from C_2 to C_3 alkylene groups, where X is sulfur, and where C_1 is a polymer chain.

- 19. (Previously presented) The polymer of claim 18, where said polymer chain derives from the anionic polymerization of monomer including conjugated dienes and optionally vinyl aromatics.
- 20. (Previously presented) The polymer of claim 18, where said polymer chain includes poly(styrene-co-butadiene).
- 21. (Previously presented) The polymer of claim 18, where said polymer chain includes a terminal functional group that includes a trialkyltin group, a thiazoline group, a trialkoxysilane group, or a carboxamide group.
- 22. (Previously presented) The polymer of claim 18, where said polymer chain includes a terminal group resulting from the termination of said polymer chain with a reagent selected from the group consisting of tin tetrachloride, tributyltin chloride,

P01090US2A(P393)

dibutyltin chloride, tetraethylorthosilicate, 1,3-dimethyl-2-imidazolidinone, and mixtures thereof.

- 23. (Previously presented) The polymer of claim 18, where R includes a C₆ to C₂₀ aryl group having attached thereto a *tert*-amine group.
- 24. (Previously presented) A method for preparing a functional polymer, the method comprising:

contacting monomer including conjugated dienes with a sulfur-containing initiator to form a living polymer, where the initiator is defined by the formula



where R is selected from C_1 to C_6 trialkyl-silyl groups, C_1 to C_{20} alkyl groups, C_4 to C_{20} cycloalkyl groups, C_6 to C_{20} aryl groups, thienyl, furyl, and pyridyl groups; and R may optionally have attached thereto any of the following functional groups: C_1 to C_{10} alkyl groups, C_6 to C_{20} aryl groups, C_2 to C_{10} alkenyl groups, C_3 to C_{10} alkynyl groups, ethers, *tert*-amines, oxazolines, thiazolines, phosphines, sulfides, silyls, and mixtures thereof; where C_1 is selected from C_2 to C_3 alkylene groups, and where X is sulfur.

- 25. (Currently amended) The method of claim 24, where the monomer includes conjugated dienes and optionally vinyl aromatics.
- 26. (Previously presented) The method of claim 25, where said step of contacting takes place in a solvent.
- 27. (Previously presented) The method of claim 26, further comprising contacting the living polymer with a terminating agent, a coupling agent, or a linking agent.

- 28. (Previously presented) The method of claim 27, where the terminating agent is selected from the group consisting of tin tetrachloride, tributyltin chloride, dibutyltin chloride, tetraethylorthosilicate, 1,3-dimethyl-2-imidazolidinone, and mixtures thereof.
- 29. (Previously presented) The method of claim 24, where the sulfur-containing initiator is defined by the formula

$$\begin{array}{c}
\text{Li} \\
\text{R}^1 \\
\text{X}
\end{array}$$

$$\begin{array}{c}
\text{NR}_2 \\
\text{m}
\end{array}$$

where R is selected form the group consisting of C_1 to C_6 Trialkyl-silyl groups, C_1 to C_{20} alkyl groups, C_4 to C_{20} cycloalkyl groups, C_6 to C_{20} aryl groups, thienyl, furyl, and pyridyl groups; where C_8 is selected form the group consisting of C_8 to C_8 alkylene groups; where C_8 is selected from the group consisting of C_8 to C_8 alkylene groups, C_8 to C_{12} cycloalkylene groups and C_8 to C_{18} arylene groups; where m is 0 to about 8, and where X is sulfur.

- 30. (Currently amended) The method of claim 24, wherein the initiator is selected from the group consisting of 2-lithio-2-methyl-1,3-dithiane, 2-lithio-2-phenyl-1,3-dithiane, 2-lithio-2-(4-dimethylamino)phenyl-1,3-dithiane, 2-lithio-2-trimethylsilyl-1,3-dithiane, and initiators selected from the group consisting of 2-lithio-2-phenyl-1,3-dithiane, 2-lithio-2-(4-dimethylaminophenyl)-1,3-dithiane, and 2-lithio-2-(4-dibutylaminophenyl)-1,3-dithiane.
- 31. (Previously presented) A vulcanized rubber composition comprising:

 the vulcanization product of a functional polymer, where the functional polymer is defined by the formula

$$R^{1}$$
 X
 R

where R is selected from C_1 to C_6 trialkyl-silyl groups, C_1 to C_{20} alkyl groups, C_4 to C_{20} cycloalkyl groups, C_6 to C_{20} aryl groups, thienyl, furyl, and pyridyl groups; and R may optionally have attached thereto any of the following functional groups: C_1 to C_{10} alkyl groups, C_6 to C_{20} aryl groups, C_2 to C_{10} alkenyl groups, C_3 to C_{10} non-terminal alkynyl groups, ethers, *tert*-amines, oxazolines, thiazolines, phosphines, sulfides, silyls, and mixtures thereof; where C_1 is selected from C_2 to C_3 alkylene groups, where X is sulfur, and where C_1 is a polymer chain.

- 32. (Previously presented) The vulcanized rubber of claim 31, where said polymer chain derives from the anionic polymerization of monomer including conjugated dienes and optionally vinyl aromatics.
- 33. (Previously presented) The vulcanized rubber of claim 31, where said polymer chain includes a terminal functional group that includes a trialkyltin group, a thiazoline group, a trialkoxysilane group, or a carboxamide group.
- 34. (Previously presented) The vulcanized rubber of claim 31, where said polymer chain includes a terminal group resulting from the termination of said polymer chain with a reagent selected from the group consisting of tin tetrachloride, tributyltin chloride, dibutyltin chloride, tetraethylorthosilicate, 1,3-dimethyl-2-imidazolidinone, and mixtures thereof.
- 35. (Previously presented) The vulcanized rubber of claim 31, where the rubber composition further comprises a filler selected form the group consisting of carbon black, silica, starch, aluminum hydroxide, magnesium hydroxide, clays, and mixtures thereof.

P01090US2A(P393)

- 36. (Previously presented) The vulcanized rubber of claim 32, where R includes a C_6 to C_{20} aryl group having attached thereto a *tert*-amine group.
- 37. (Currently amended) A tire component comprising the rubber composition of elaims claim 33.